

**MARICOPA COUNTY SPECIAL PROVISIONS
FOR
CONSTRUCTION OF STREET IMPROVEMENTS**

I. STREET IMPROVEMENTS

A. Subdivisions

- 1.a. Streets in residential subdivisions with net lot areas of 18,000 square feet or less shall be improved consistent with their functional classification and to urban standards according to the cross sections shown in the Maricopa County Department of Transportation (MCDOT) Roadway Design Manual. Streets in residential subdivisions with net lot areas greater than 18,000 square feet shall be improved to either urban or rural standards according to the MCDOT Roadway Design Manual. Where grades exceed five percent (5%) or the roadway accommodates cross drainage, penetration chip seal surfaces shall not be used.
- b. Roadways for Industrial Parks and Commercial Lots shall be improved per the MCDOT Roadway Design Manual (Figure 5.5).
2. Access to subdivisions shall be provided as required by the Maricopa County Special Provisions for Perimeter Street Improvements. Sufficient lane capacity shall be provided to accommodate the subdivision. Chip seal pavement shall not be used for access roads where the built out development traffic volume, will exceed 300 vehicles per day.
3. All utility services in new subdivisions shall be installed, tested for operation and trench compaction test approved prior to placement of pavement.
4. Curb returns shall be vertical curb, (four or six inches high) consistent with adjacent curb. Transitioning between different height curbs may be done in curb transitions of lesser height curb.
5. Inverted crown designs are prohibited.
6. Perimeter streets shall be improved as required by an approved Traffic Study, consistent with the future functional roadway classification or as directed by the County Engineer. A half street shall be constructed on the subdivision side, but shall be no less than 24 feet in travel width.
7. Sidewalk ramps shall be included on all curb returns at intersections and at locations where pedestrian traffic is invited to cross-traveled ways. Ramps shall comply with MCDOT Standard Details.
8. Sidewalks shall be provided in all urban subdivisions and be of the width and location specified in the MCDOT Roadway Design Manual.
9. At intersections where drainage is transferred across the roadway at a cross slope of less than 0.3 percent, a valley gutter shall be installed a minimum four (4) foot wide and constructed of concrete.

B. General

1.Improvements within County right-of-way shall conform to applicable Standards and Specifications of MAG, the MCDOT Roadway Design Manual and these Special Provisions.

2.a. Typical roadway sections shall conform to the latest MCDOT Roadway Design Manual according to design roadway classification. The pavement section shall be a minimum of two and one half (2 1/2) inches compacted depth of asphalt concrete (AC) over six (6) inches aggregate base course ABC). Normal crown pavement cross-slopes shall not exceed a minimum of 1.5% or a maximum of 2.5% unless approved by MCDOT.

Before placing ABC material, all vegetation shall be removed and the soil sterilized.

b. Street pavement in Industrial Parks and Commercial Subdivisions shall consist of a minimum of four (4) inches of compacted depth of asphalt concrete over ABC as determined from laboratory soil test results, with ten (10) inches as a minimum compacted depth of ABC.

3.All asphalt concrete shall receive a preservative seal (SS-1H) in accordance with Sections 334 and 713 of the MAG Uniform Standard Specifications.

4.Channels and natural washes that flow across roadways as surface drainage onto a paved street shall be lined with a non-erosive material or improved as required by the County Engineer within the right-of-way.

5.Drainage must be provided as per the approved plans. Design frequencies and street flow requirements shall conform to the Drainage Regulations of Maricopa County Flood Control District. As a minimum, storm drain collection shall be designed for a 10 year storm and discharge a minimum of 100 feet from edge of roadway.

6.Irrigation and Utilities

a.All private irrigation facilities and other private utilities must be relocated onto private easements at no cost to the County. Unused or abandoned facilities in the right-of-way must be removed to the satisfaction of the County Engineer.

b.Public utility facilities existing at the time of the improvements shall be relocated to non-conflicting locations at no cost to the County, or as required by the County Engineer.

c.Appropriate notification to utilities is required prior to the start of excavation operations (Blue Stake telephone no. 602-263-1100).

II. SPECIFICATIONS

All work and materials shall conform to the current Maricopa Association of Governments (MAG) Uniform Standard Specifications and Details for Public Works Construction, the MCDOT Supplement to MAG, and the MCDOT Roadway Design Manual; EXCEPT as noted in these Special Provisions. In case of conflict between the Uniform Standard Specifications and the Special Provisions, these Special Provisions shall govern.

It is not the intention of the Maricopa County Department of Transportation to prohibit use of other materials, methods or designs for street improvements. Other specifications will be

considered as satisfactory alternates upon **written approval** of the County Engineer, based on prior submission and review of structural data, designs, tests and other supporting data.

III. CONSTRUCTION DEFICIENCIES

A. Asphalt Concrete

1. Penalties for deficiencies shall be per MAG Section 321.6
2. All pavement projects shall require core samples. Cost of taking core samples and related testing to determine compliance with this Specification shall be paid for by the General Contractor.
3. The wearing surface, when ready for acceptance, shall be thoroughly

compacted, smooth and even, true to grade and cross-section, and free from ruts, humps, depressions, or irregularities. When a 10-foot straightedge is laid on the finished surface and parallel (longitudinal) or perpendicular (transverse) with the centerline of the road, the surface shall vary in no place more than 1/8 inch from the lower edge of the straightedge.

B. Concrete Work

Concrete curb, gutter, and sidewalk shall be constructed within 1/2 inch of the specific dimensions.

No utility valve caps, clean outs or valve boxes shall be located in the curb or gutter.

The curb and gutter shall be tested with a 10-foot straightedge, longitudinally along the surface. Any deviation in excess of 1/4 inch shall be corrected at no additional cost to Maricopa County.

No damaged (e.g. chipped, cracked, imprinted) items will be accepted. When curb, gutter, or sidewalk does not meet the above requirements, the work will be rejected and remedial action specified.

If roadway pavement is damaged during replacement of curb, gutter, or sidewalk the roadway shall be repaired to the satisfaction of the County Engineer.

IV. ENGINEERING

- A. All preparation of plans, staking, construction, and inspection within County right-of-way shall be performed under the supervision of a civil engineer, registered in the State of Arizona. Staking may also be performed under the supervision of a Land Surveyor, registered in the State of Arizona.
- B. Plans shall be submitted on a consistent sheet size not to exceed 24" x 36" and must be neat, clear, legible and complete in all respects.

Improvement plans shall be submitted on plan and profile sheets with a horizontal scale no smaller than 1" = 50' and a vertical scale no smaller than 1" = 5'. The scale must be adequate to clearly show all grade breaks and details.

A signage and striping plan shall be required for work on roadways classified as a collector road or greater.

Pre-development profile grade line shall be shown as broken lines..

Final profile grade line shall be shown as solid lines.

Plans should be submitted for approval at least fifteen (15) working days prior to any submission of an application for a construction permit.

- C. Continuous field inspection shall be required during construction operations. The field inspections shall be provided by the permittee and shall be performed under the supervision of a civil engineer, registered in the State of Arizona.
- D. Upon completion of the following phases of construction (mass grading, underground utilities, concrete structures, sidewalk, curb and gutter, and sidewalk ramps, drainage structures, sub-grade under pavement, base course, and asphalt concrete) the engineer shall certify in writing to the Maricopa County Department of Transportation that the work was accomplished in accordance with the approved plans and specifications.

V. PERMITS

All work performed within County right-of-way shall be under a permit from the Maricopa County Department of Transportation. A minimum of 3 sets of approved improvement plans must be submitted with the permit application at least three (3) working days before work is scheduled to begin. If plans not previously approved are submitted with the permit application, additional review time may be required (See Section IV). Work shall not begin until a permit is issued and the traffic control plan has been submitted and approved.

The Contractor is responsible for securing any and all necessary permits from other jurisdictions prior to commencing work. Conformance to other permit requirements and coordination of any conflicts between permits is the responsibility of the Contractor.

Prior to moving or destroying protected native plant species, the Contractor shall file a formal Notice of Intent with the Arizona Department of Agriculture and obtain all necessary permits.

Prior to conducting excavation operations, the Contractor shall obtain from the Arizona State Environmental Planning Group recommendations regarding the need for cultural resources (archaeological) clearance.

If the work is subject to the National Pollutant Discharge Elimination System (NPDES) storm water requirements for construction sites, a Storm Water Pollution Prevention Plan (SWPPP) must be filed and approved prior to issuance of a permit.

VI. PUBLIC UTILITIES

It shall be the permittee responsibility to arrange for all necessary installation, relocation or removal of conflicting public utilities. Abandoned utilities that are exposed shall be removed from the project site, both ends capped, location noted on as-built plans and the affected utility company shall maintain a permanent log of the abandoned facilities remaining in place. Satisfactory test reports, as required by the "Maricopa County Special Provisions for Installation of Underground Utilities", must be received by the Maricopa County Department of Transportation prior to approval for paving or concrete operations over any utility. The County Engineer or his designee shall give approval for paving operations only after compliance with all

requirements for utility installation, grading and subgrade compaction. The latest edition of "Maricopa County Special provisions for Installation of Underground Utilities" is incorporated herein and made a part hereof.

VII. DUST CONTROL

Existing regulations, (namely Regulation II, Rule 20-A-3 of the Maricopa County Environmental Services, Bureau of Air Pollution Control and the MAG 1991 Particulate Plan for PM-10 for the Maricopa County Area together with all current revisions), shall be rigidly observed and enforced. Water or other approved dust palliatives in sufficient quantities shall be applied during all phases of construction involving open earthwork to prevent the unnecessary discharge of dust and dirt into the air.

VIII.COMPACTION

A. Subgrade – The top six inches (6") of pavement subgrade shall be scarified and compacted per MAG Uniform Standard Specification Section 301 and the Maricopa County Department of Transportation Supplement to MAG. Rock six inches (6") or greater shall be removed from the scarified subgrade.

B. Base Material – The base course shall not be placed on subgrade until compaction tests of the subgrade have been completed and the subgrade has been found to meet the specifications in Section XII of this resolution and average grade and cross slope is per MAG Specification Section 301.4. Base material shall be compacted, full depth, to a minimum density of one hundred percent (100%) of the maximum density for the material being used.

C. Surface Course – The surface course shall not be placed on base material until compaction tests of the base material have been completed and the base material has been found to meet the specification in Section XII and Section XV of this resolution and required grade and cross section per MAG Specification Section 310.2. Asphalt concrete pavement shall be compacted per MAG Specification Section 321.5.4. The

Engineer of Record shall establish a rolling pattern for required density.

D. Requests for variances from the above will require certified material tests and designs to be reviewed and approved by the County Engineer in advance.

IX. CONTRACTION AND EXPANSION JOINTS FOR CURB, GUTTER AND SIDEWALK

Contraction and expansion joints shall conform to Sections 340 and 729 of the MAG Uniform Standard Specifications and be spaced no greater than five feet (5') apart.

X. TESTING

All testing herein required shall be performed under the supervision of a civil engineer registered in the State of Arizona. Laboratory tests shall be performed in an Arizona State certified laboratory. A laboratory technician certified for the tests being performed shall perform field tests. All test reports are to be submitted to the Maricopa County Department of Transportation. Each report shall indicate the location of the test, type and source of material tested, test designation being used and the name of the person performing the test.

XI. PAVEMENT DESIGN

- A. Improvements within County Right-Of-Way shall conform to the applicable standards in the Uniform Standards and Specifications for Public Works Construction sponsored and distributed by the Maricopa Association of Governments (MAG), the MCDOT Roadway Design Manual, and these special provisions. All roadway pavement improvements within the County Right-Of-Way shall have the pavement thickness designed by an Engineer registered in the State of Arizona who specializes in pavement design and geotechnical engineering. Neither this design nor the associated tests will be provided by Maricopa County.
- B. Pavements shall be designed in accordance with the methods established by the current version of the MCDOT Roadway Design Manual. The following additional requirements shall also be incorporated into the design and construction.

- 1. Test holes for soil investigation phase of the pavement design shall be spaced at one (1) per eight hundred (800) lineal feet with at least one per proposed street. Each test hole shall be advanced to the following minimum depths if there is no significant cut or fill required. These depths represent distance below the elevation of proposed subgrade.

Residential Streets	18 inches
Arterial or Collector Streets	36 inches

In areas of cut or fill, the Engineer shall use his professional judgment to determine the depth of each test hole. Additional test holes shall be taken at apparent changes in soil type.

- 2. As a minimum, at least one soil sample from each test hole shall be tested for sieve analysis (AASHTO T27) with results reported as percent passing each sieve, plus a plasticity index and liquid limit (AASHTO T89 and T90).
 - 3. For all asphalt concrete pavements (AC), the minimum thickness of AC shall be two and one half (2 ½) inches.
 - 4. Asphalt concrete pavements of streets in industrial parks and commercial subdivisions shall consist of a minimum thickness of four (4) inches AC over ABC. The ABC thickness shall be determined by the soils investigation, but it shall not be less than ten (10) inches.
 - 5. The Engineer shall prepare a pavement design report that includes results of all of the tests and pavement structure design calculations. This report shall be forwarded to the County together with the paving plans.
 - 6. Before placing aggregate base course (ABC) material, all vegetation shall be removed and the soil sterilized.
 - 7. Prior to moving or destroying protected native plant species, the Contractor shall file a formal Notice of Intent with the Arizona Department of Agriculture and obtain all necessary permits.
- C. Additional tests may be ordered by the County Engineer for purposes of assuring design information when the pavement design method is other than the standard.

XII. COMPACTION TESTS

- A. The following tests shall be performed:

1. Pavement Subgrade - 1 test per 800 lineal feet of roadway with at least 1 test per street.
 2. Curb Subgrade - 1 test per 500 lineal feet of curb with at least 1 test per street, per side.
 3. Base Material - 1 test per 800 lineal feet of roadway with at least 1 test per street.
 4. Sidewalk Subgrade - 1 test per 500 lineal feet of sidewalk with at least 1 test per street, per side.
- B. Maximum densities for the materials being compacted shall be determined in the laboratory on the same materials in accordance with AASHTO Designations T-99, Method A. Field density tests shall be performed in accordance with AASHTO Designation T-191, T-238 or T-239. At least one density test per subdivision/roadway shall be accomplished using ASTM 1556. One density test using ASTM 1556 shall be accomplished for every ten nuclear density test.
- C. Test locations shall be staggered within the limits of the improvements.

XIII. CONCRETE TESTS

See Section 725 of the MAG Uniform Standard Specifications for required concrete tests.

XIV. ASPHALT CONCRETE TESTS

- A. The contractor shall furnish the asphalt mix formula to Maricopa County Department of Transportation for approval 48 hours prior to placing any asphalt courses.
1. All asphalt mix design shall be superpave unless approved by MCDOT.
 2. Gradation designation greater than 19.0 mm is not permitted for work in the County right-of-way. Gradation to thickness ratio shall not exceed 1:3.
- B. The following tests shall be taken:
1. Gradation – Express as % size passing sieve control points.
 2. Asphalt content – Expressed as % by weight of total mixed material, sample and tested per AASHTO T-164 and T-168.
 3. Compaction – As previously specified above in Section VIII.C.
 4. Asphalt Core – One per 800 lineal feet of roadway with at least 1 test per street. Additional testing and correction required per Section IIIA herein due to thickness deficiencies shall be per MAG Specification Section 321.6.

XV. MATERIALS

- A. Base Material - Material shall meet Section 702.2 of the MAG Uniform Standard Specifications. If "Select" material is used, the upper four inches (4") of base shall be Aggregate

Base. The balance of the required thickness may be select material, Type B. The total thickness shall be determined by laboratory tests of the subgrade materials, with the minimum as specified in the Maricopa County Department of Transportation Roadway Design Manual.

- B. Asphalt Concrete - Material shall meet Section 710 of the MAG Uniform Standard Specifications. Use Superpave -19mm or 12.5mm. Minimum lift thickness shall be per Table 710-1 of the MAG Uniform Standard Specifications.
- C. Preservative Seal Coat – Seal Coat shall meet Section 718 of MAG Uniform Standard Specifications (SS-1H).
- D. Concrete - Concrete construction within the right-of-way shall be of the class specified in the MAG Uniform Standard Details and conform to the applicable requirements of Section 725 of the MAG Uniform Standard Specifications, unless otherwise required by MCDOT.
- E. Reinforced Concrete Pipe - Shall meet Section 735 of the MAG Uniform Standard Specifications. Rubber gaskets are required whenever pipe is under existing or proposed roadway.
- F. Corrugated Metal Pipe - Shall meet Section 621 of the MAG Uniform Standard Specifications. Pipes under existing or proposed roadways shall be bituminous coated or aluminized.
- G. Miscellaneous - Any other items shall conform to the applicable sections of the MAG Uniform Standard Specifications, unless approved otherwise.

XVI. CONSTRUCTION

All construction shall conform to the applicable sections of the MAG Uniform Standard Specifications, Manual of Uniform Traffic Control Devices, MUTCD, MCDOT Resolutions, and MCDOT Supplements to MAG unless modified in writing by the County Engineer.

XVII. STREET SIGNS AND SURVEY MONUMENTS

- A. The developer of a subdivision shall be responsible for purchase and erection of street name signs at all intersections within the subdivision, including intersections with perimeter streets. All street name signs shall conform to MCDOT Standard Detail 2054-1 and 2054-2 of the MCDOT Supplement to MAG Uniform Standard Specifications and Details for Public Works Construction. Signs shall be furnished and installed, at no cost to the County, at locations shown on the approved plans.
- B. Survey monuments shall conform to the applicable MAG Standard Detail 120-1 or 120-2 and shall be furnished and set by the owner at no cost to the County. Monuments shall be located as shown on the approved plans or as required by the Maricopa County Department of Transportation and shall be properly punched by a registered land surveyor.
- C. **No approval or acceptance of a project will be given until these items are complete in place.**

XVIII. TRAFFIC CONTROL REQUIREMENTS

Traffic control shall conform to the MUTCD and the "Maricopa County Special Provisions for Traffic Control Under Permit," incorporated herein and made a part hereof. Any signs removed by a contractor shall be maintained on a portable stand during construction. All signs shall be reinstalled by the contractor to MCDOT standards at the end of the project.

XIX. SIDEWALKS, BICYCLE PATHS AND SPECIAL USES

A. When sidewalks are required, they shall be installed to the widths and at the locations indicated in the Maricopa County Department of Transportation Roadway Design Manual, unless otherwise approved.

B. Bicycle paths, equestrian and hiking trails are not required by Maricopa County. If constructed in County rights-of-way, such construction must be approved by the County Engineer and under permit from the Maricopa County Department of Transportation. Bicycle lanes as an integral part of the roadway, required for arterial roads shall comply with the latest edition of the Maricopa County Department of Transportation Roadway Design Manual

XX. MAIL BOXES

Individual mailboxes are permitted to be placed only in such locations that will not interfere with traffic, either vehicular, bicycle or pedestrian, or create a hazard of any nature.

If a sidewalk is constructed adjacent to the curb, the mailbox shall be located behind the sidewalk and clear of the vertical projection of the back edge of the sidewalk by a minimum of one (1) foot. If no sidewalk is constructed, the box must clear the vertical projection of the back edge of the curb by a minimum of one (1) foot. If no curb is constructed, the box must clear the vertical projection of the edge of the pavement by a minimum of three (3) feet. Installation of individual mailboxes in the County right-of-way shall be done under permit from the Maricopa County Department of Transportation. It is the permittee's responsibility to satisfy any requirements of the local postmaster and provide uninterrupted mail service during construction.

XXI. STREET LIGHTS AND POWER POLES

Street lights and power poles are permitted to be placed only in such locations that will not interfere with traffic, either vehicular or pedestrian, or create a hazard of any nature.

If a sidewalk is constructed adjacent to the curb, the above mentioned objects shall be located behind the sidewalk by a minimum of one (1) foot. If no sidewalk is constructed, the objects must clear the back edge of the curb by a minimum of six (6) foot on section line and major streets or five (5) foot on mid-section and residential street alignments. If no curb is constructed, the objects must clear the vertical projection of the edge of the pavement as outlined in the Maricopa County Department of Transportation Roadway Design Manual Figure 5.30 Clear Zone Width Criteria. Installation of street lights and power poles in the County Right-Of-Way shall be done under permit from the Maricopa County Department of Transportation.

XXII. PROJECT APPROVAL

The project will not be considered ready for final inspection until all drainage items, grading, and backfill are complete and pavement, curbs and sidewalks are swept clean of all dirt and debris. The area behind curbs shall be totally backfilled to top of curb, compacted and neatly dressed to a maximum 4:1 slope within the Right-Of-Way. The contractor shall furnish a water

truck at the time of final inspection for the purpose of testing street drainage. Any ponding in excess of ten square feet in surface area or 1/2 inch in depth shall require corrective action by the contractor. The "as-built" plans and all test reports must be submitted before final project approval.

XXIII. DECLARATION

Prior to one year after approval of the improvements in a subdivision, an inspection will be made by the Maricopa County Department of Transportation to determine to what extent, if any, damage may have been caused by construction operations. Any such damaged sections must be repaired or replaced at no cost to the County prior to being eligible for declaration into the County System for permanent maintenance.

XXIV. CHANGES

No variation from these Special Provisions or approved plans and specifications will be permitted unless submitted to and approved in advance by the County Engineer.

XXV. GUARANTEES

The contractor shall guarantee all work against defective workmanship or materials for a period of one (1) year from the date of acceptance, as evidenced by release of the permit, except for ordinary wear and tear or unusual abuse or neglect by parties other than the Contractor.

